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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/067,938

02/08/2002

Yutaka Matsunobu

381AS/49196DV

8443

7590

06/09/2005

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EXAMINER

VANAMAN, FRANK BENNETT

ART UNIT

PAPER NUMBER

3618

DATE MAILED: 06/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/067,938

Applicant(s)

MATSUNOBU ET AL.

Examiner

Frank Vanaman

Art Unit

3618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 18-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 18-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**Status of Application**

1. Applicant's amendment, filed March 22, 2005, has been entered in the application. Claims 18-21 are pending, claims 1-17 having been canceled.

**Claim Rejections - 35 USC § 103**

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawakatsu (US 4,335,429) in view of Tadahiro et al. (JP 8-33246) and Brown et al. (US 5,989,146). Kawakatsu teaches a hybrid electric vehicle having an engine (1) an electric motor (5, 7) connected in series to a drive shaft which is then connected to a differential for driving the vehicle wheels, the reference teaching no forward/reverse switching gear. The reference of Kawakatsu fails to teach the motor as being a permanent magnet machine having a stator, a stator core around which a coil is wound, a rotor arranged in the stator with a plurality of permanent magnets with the rotor being non-symmetrical at each pole, having a magnet accommodating slot which is inclined so as to be at a greater distance from the rotor circumference on a side associated with one rotational direction. Permanent magnet motors are extremely old and well known, and the provision of a stator with a core around which a coil is wound, wherein the stator surrounds a permanent magnet rotor is not at all beyond the skill of the ordinary practitioner, and it would have been obvious to one of ordinary skill in the art at the time of the invention to construct the motors of the vehicle of Kawakatsu with a permanent magnet motor having a stator around which a coil is wound, for the purpose of employing a well known, efficient and inexpensive standard motor for operating the vehicle. The modified reference of Kawakatsu fails to teach the rotor as including a non-symmetric configuration about a protruded pole, wherein a magnet insertion aperture is rectangular, and is inclined so as to favor a rotational direction. Tadahiro et al. teach a motor rotor having a plurality of permanent magnets (4a, 4b) which are installed in rectangular openings (3) which are inclined at an angle of between 10 and 45 degrees, the rotor including a plurality of protruded poles (e.g. A), the machine thus providing

higher magnetic flux density, and thus operating torque in a first rotary direction than in a second rotary direction.

It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the non-symmetric configuration of the magnet insertion openings as taught by Tadahiro et al. to a conventional permanent magnet motor structure usable in the vehicle of Kawakatsu, for the purpose of increasing the operational force which may be exerted by the motor in one rotational direction.

The modified reference to Kawakatsu teaches motor-only drive in the lowest speed ranges (figure 2), but fails to explicitly teach the provision of a rearward torque as being greater than a forward torque. Brown et al. teach that it is old and well known to provide a vehicle reverse gear with the lowest speed/highest torque relationship, generally a higher torque relationship than even the first forward gear (e.g., "first high" compared to "reverse high" gives 3.677:4.083, or 1.11), it would have been obvious to one of ordinary skill in the art at the time of the invention to arrange the motor such that the higher torque direction is associated with reverse drive direction of the vehicle drive for the purpose of controlling the vehicle behavior to mirror a user's expectations based on commonly available vehicle with mechanical transmissions, such as taught by Brown et al.

As regards claims 20 and 21, while the first line of the claim appears to recite the dynamo-electric machine only, the preamble (lines 2-6) recites numerous specific hybrid vehicle structures and as such, it is treated with the rejection employing the reference to Kawakatsu.

4. Alternatively Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tadahiro et al. (JP 8-33246) in view of Brown et al. (US 5,989,146). Tadahiro et al. teach a rotor for an electrical machine which may be installed in a hybrid vehicle between an engine and a final drive transmission lacking a forward/reverse switching arrangement, the machine having a rotor with a plurality of permanent magnets (4a, 4b) which are installed in rectangular openings (3) which are inclined at an angle of between 10 and 45 degrees, the rotor including a plurality of protruded poles

(e.g. A), and thus providing higher magnetic flux density, and thus operating torque in a first rotary direction than in a second rotary direction.

Tadahiro, being specifically directed to a rotor structure, fails to teach the motor as explicitly having a stator, a stator core around which a coil is wound. Permanent magnet motors are extremely old and well known, and the provision of a stator with a core around which a coil is wound, wherein the stator surrounds a permanent magnet rotor is not at all beyond the skill of the ordinary practitioner, and it would have been obvious to one of ordinary skill in the art at the time of the invention to use the rotor taught by Tadahiro in a protruded pole permanent magnet machine having a stator around which a coil is wound, for the purpose of employing a well known, efficient and inexpensive standard motor for operating the vehicle.

The modified reference to Tadahiro fails to explicitly teach the provision of a rearward torque (for example, for driving a vehicle in a rearward direction) as being greater than a forward torque. Brown et al. teach that it is old and well known to provide a vehicle reverse gear with the lowest speed/highest torque relationship, generally a higher torque relationship than even the first forward gear (e.g., "first high" compared to "reverse high" gives 3.677:4.083, or 1.11), it would have been obvious to one of ordinary skill in the art at the time of the invention to arrange the motor such that the higher torque direction is associated with reverse drive direction of the vehicle drive for the purpose of controlling the vehicle behavior to mirror a user's expectations based on commonly available vehicle with mechanical transmissions, such as taught by Brown et al.

As regards the provision of specific details associated with a hybrid vehicle, please note that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 370 F.2d 576, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 312 F.2d 937, 939, 136 USPQ 458, 459 (CCPA 1963).

### Response to Comments

5. Applicant's comments have been carefully reviewed. Applicant has argued that the motor taught by Tadahiro teaches a motor with higher torque in a forward drive direction. In this case, however, Tadahiro's motor is not limited to single direction operation, as was acknowledged in applicant's comments of June 4, 2004. As such, in view of the *combined teachings* (i.e., taken in combination with the reference to Brown et al.) it is not deemed to be beyond the skill of the ordinary practitioner to arrange the motor so that the higher torque direction is associated with rearward drive so as to present a familiar mode of operation in comparison with motor vehicles having a transmission wherein the reverse drive has the highest available torque. Applicant's analysis of Tadahiro is noted, but - as mentioned previously - inasmuch as the interpretation showing Tadahiro's motor structure to have a maximum torque in a first direction, which becomes greater than the maximum torque in a second opposite direction is similarly accurate, and in view of Brown et al.'s teachings, the use of the higher torque direction as being associated with rear drive is not deemed to be beyond the skill of the ordinary practitioner. Applicant has argued that the reference to Kawakatsu teaches a "conventional transmission having both the [sic] forward and backward changing gear" (page 7 of the remarks), but has provided no citation to a specific passage or figure in the reference which explicitly supports this argument. Please note that the arguments of counsel cannot take the place of evidence in the record. In re Schulze, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965). If applicant has evidence that the reference to Kawakatsu does indeed teach a conventional transmission having forward and backward changing gear, then such evidence should be made of record.

In response to applicant's arguments against the references individually (e.g., that Brown et al., while teaching that it is well known to have a higher drive torque in a rearward direction, fails to teach an electric motor), one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

### Conclusion

6. Applicant's amendment necessitated the modified ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

7. Any inquiry specifically concerning this communication or earlier communications from the examiner should be directed to F. Vanaman whose telephone number is 571-272-6701.

Any inquiries of a general nature or relating to the status of this application may be made through either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A response to this action should be mailed to:

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Commissioner for Patents  
P. O. Box 1450  
Alexandria, VA 22313-1450,

Or faxed to one of the following fax servers:

Regular Communications/Amendments: 703-872-9326  
After Final Amendments: 703-872-9327  
Customer Service Communications: 703-872-9325

**F. VANAMAN**  
**Primary Examiner**  
**Art Unit 3618**

Handwritten signature of F. Vanaman, dated 4/7/05.